

REMARKS

Summary of the Examiner's rejections

Claims 16-36 were rejected, as understood, under 35 USC § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one of ordinary skill in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. In particular, the subject matter expressed in the terms "high curing temperature powder adhesive" and "lower than a maximum acid-impervious temperature level of the particulate,"

Claims 29-30 and 33-36 were rejected, as understood, under 35 USC § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one of ordinary skill in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. In particular, the subject matter expressed in the terms "to mitigate the acid of the steel from penetrating therethrough."

Claims 16-25 and 27-30 were rejected, as understood, under 35 USC § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention with regards to the relative term "high curing temperature." Claims 16-25 and 21-32 were rejected, as understood, under 35 USC § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention based on a view that it is unclear whether the Applicants' invention is to claim the metal structure/fixture or the acid-containing part comprising the metal structure/fixture.

Claims 26-28 were rejected under 35 USC § 102 (b) as being anticipated by Millar et al. (US Patent No. 4,027,366).

Reasons Rejections are Believed to have been Overcome

Applicants respectfully submit that Claims 16 and 20, as amended, are believed to be allowable. In particular, Claims 16 and 20 have been amended to eliminate the terms “for forming an acid containing part into a desired shape” and “to mitigate the acid of the part from penetrating therethrough.” By this amendment, the Applicants have eliminated the recitation of future use to clarify that the invention being claimed is the metal structure/fixture and not the acid containing part comprising the metal structure/fixture. In this regard, Applicants respectfully submit that the rejection under 35 USC § 112, second paragraph based on a view that Applicants’ recitation of future use make Applicants’ intention unclear has been overcome by eliminating the recitation of future use.

Additionally, Claims 16 and 20 have been amended as follows “~~lower than a maximum below an~~ acid-impervious temperature level of the particulate.” The basis for this amendment is found within the specification, specifically, the same states that “the powder adhesive in all cases of course cures below the acid-impervious¹ level of the polymer particulate.”² In this regard, Applicants respectfully submit that the rejection under 35 USC § 112, first paragraph based on a view that at the time of filing the disclosure the same did not suggest a “lower than a maximum acid-impervious temperature level of the particulate” has been overcome by conforming the languages of Claims 16 and 20 to the language found within the specification.

In the Office Action, the Examiner rejected Claims 16 and 20, as understood, under 35 USC § 112, first paragraph based on a view that the specification does not convey to one of ordinary skill in the art, at the time the application was filed, that the inventors had possession of the claimed invention in regards to the subject matter of

¹ The specification as filed contained the term “resistant” and not the term “acid impervious.” However, during the prosecution of the application, namely in response to the Office Action mailed on December 21, 2000, the term “acid-impervious” replaced the term “resistant.” The response was mailed on January 22, 2002. The basis for that amendment was found in the specification. In particular, the specification at Col. 2, lns. 17-23 states that the resultant coating is acid impervious. Since the coating comprises an adhesive and a particulate, the particulate must be the component of the mixture that imparts the acid impervious nature to the coating.

² Col. 3, lns. 15-17.

“high curing temperature.” The Examiner was not persuaded by the Applicants’ arguments filed on 10/28/02 in relation to the term “high” based on a view that:

“the sections noted by the Applicant actually support the Examiner’s position that the original disclosure only provides an upper limit and not a lower limit and hence would not reasonably convey an invention with ‘high curing temperature’ powder adhesive given that room temperature falls within the temperature limit of the original disclosure and is not typically considered a ‘high’ temperature. Though the Applicant has referred the Examiner to a recitation in the background section regarding high temperature polymer composite materials that cure above about 500°F that will corrode the steel fixture, this recitation refers to the composite material and not the powder adhesive in the coating on the steel fixture.”³ (emphasis added).

Applicants respectfully submit that (1) the original disclosure provides a lower limit of the “high curing temperature” and (2) the original disclosure if not explicitly then implicitly refers to both the composite material and powder adhesive when they are cured above 500°F. In support thereof, the specification states that:

“[t]he composite material is vacuum-bagged to the steel fixture and cured in an autoclave at an elevated temperature, all as known in the art. However, certain high-temperature polymer composite materials that cure above 500°F will corrode the steel fixture while contemporaneously producing a bad part that exhibits undesirable reduced oxidative properties and high porosity.”⁴ (emphasis added).

This quotation from the specification simply states the problem to be solved. Simply put, when composite material is cured at a high temperature on a steel fixture, the steel fixture corrodes and the cured composite material is not usable. Additionally, in the summary of the invention, the specification describing the structure/fixture claimed in Claims 16 and 20 and the results therefrom states that:

“A steel substrate coated in accord with the present methodology is particularly useful as a curing fixture upon which resin-impregnated fiber of polymer composite material is placed to thereby give molded parts made therefrom a

³ Paper 22, Pg. 5.

⁴ Col. 1, Ln. 27 to Col. 2, Ln. 6.

desired shape. Production of a part is accomplished by vacuum bagging the composite material to the steel fixture and curing the so produced part in place on the fixture in an autoclave at an elevated temperature. In this manner the acid impervious curing fixture of the present invention allows production of composite parts without the danger of leaching iron from the fixture to thus assure full-utility part fabrication.”⁵

This quotation from the specification discloses that the fixture is coated with adhesive.

As such, when the composite material is cured, the composite material, fixture and adhesive are found within the same vacuum bag and the same autoclave.

Furthermore, the two statements found within the specification taken together if not explicitly then implicitly discloses that the curing temperature of the powder adhesive must be above at least 500°F thereby defining the lower limit of the “high curing temperature.” If the adhesive disclosed in the specification has a curing temperature lower than 500°F or at room temperature, then the high-temperature polymer composite material, which cures above 500°F, would corrode the fixture because the adhesive would melt away and expose the steel surface of the fixture to the composite material, and the composite part would leach iron from the fixture to not assure full utility part fabrication. In this regard, if room temperature falls within the temperature limit of the original disclosure, then the composite part would continue to corrode the steel fixture. As such, the lower limit of the curing temperature of the adhesive must be above 500°F to prevent the adhesive from melting away when the composite material is cured on the fixture coated according to the present invention at temperatures above 500°F. Hence, the disclosure as filed provides the upper and lower temperature curing limits of the adhesive. For the foregoing reasons, Applicants

⁵ Col. 3, ln. 27 to Col. 4, ln. 2.

respectfully submit that the rejections under 35 USC § 112, first paragraph has been overcome.

Claims 16 and 20 were rejected, as understood, under 35 USC § 112, second paragraph, as being indefinite with regards to the relative term “high curing temperature.” As discussed above, the lower limit of high curing temperature is above 500°F. And, as discussed in the specification, the upper limit of high curing temperature is below 700°F.⁶ As such, the specification contains the standard in measuring “high curing temperature.” For the foregoing reasons, Applicants’ respectfully submit that Claims 16 and 20 are allowable.

Applicants respectfully submit that the dependent claims of Claim 16 and 20 contain additional patentable subject matter. In particular, new Claims 37 and 38 which depend on Claims 16 and 20, respectively, state that “the curing temperature of the adhesive is above about 500°F.” The basis for the new Claims 37 and 38 are found within the specification as referred to in Applicants’ arguments in relation to Claim 16 and 20. Hence, Applicant respectfully submit that the dependent claims of Claims 16 and 20, namely, Claims 17-19, 21-25 and 37-38 are in condition for allowance.

In the Office Action, as understood, Claim 26 was rejected under 35 USC § 112, first paragraph based on a view that the disclosure as filed did not provide support for the limitation “lower than a maximum acid impervious temperature level of the particulate.” In response, Claim 26 has been amended to state “below an ~~lower than a~~ ~~maximum~~ acid-impervious temperature level of the particulate.” This amendment to Claim 26 tracks the amendment made to Claims 16 and 20. As such, for the reasons

⁶ Col. 5, lns. 7-10.

discussed in relation to Claims 16 and 20 pertaining to the terms “below an acid-impervious temperature level of the particulate,” Applicants believe that amended Claim 26 overcomes the Examiner’s rejection under 35 USC § 112, first paragraph.

Additionally, as understood, Claim 26 was rejected under 35 USC § 102(b) as being anticipated by Millar et al. Applicants respectfully submit that Millar et al. does not disclose the invention in Claim 26. In particular, Millar et al. does not disclose (1) a mixture of adhesive and particulate on the steel surface and (2) a temperature relationship of an adhesive having a curing temperature below an acid-impervious temperature level of the particulate.

In relation to the mixture, Millar et al. discloses a mixture of powders.⁷ However, when the mixture is deposited on the surface, the powders within the mixture stratify into distinct layers.⁸ In other words, the powders in the mixture are separated or unmixed into layers when the powders are deposited on the surface. Additionally, Millar et al. discloses that “the coating composition ... produces a plurality of distinct, superimposed layers of coating material on the [surface].” (emphasis added).⁹ Simply put, the powders disclosed in Millar et al. may **begin** as a **mixture** before the powders are deposited on the surface, but the powders **do not end** as a **mixture** after the powders are deposited on to the surface; instead, the powders are separated into “**distinct, superimposed layers**.” In this regard, Millar et al. does not disclose a mixture deposited on the surface.

⁷ Millar et al., abstract.

⁸ Id.

⁹ Millar et al., Col. 8, lns. 20-22.

Furthermore, the disclosure of Millar et al. teaches away from depositing a mixture on the surface based on a view that mixing the layers would defeat the very purpose of the invention disclosed in Millar et al. As understood, the purpose of Millar et al. "relates to a process for electronstatically applying a multilayer coating to substrates."¹⁰ (emphasis added).

In relation to the temperature relationship, as discussed in the Applicants' prior response, Millar et al. does not disclose a curing temperature of the adhesive as a function of the acid-impervious temperature level of the particulate. The disclosure appears to be absent any relationship between the temperature characteristics of different powders in the mixture. In this regard, Millar et al. does not disclose a temperature relationship between the various components in the mixture. Hence, for the foregoing reasons, Applicants respectfully submit that Claim 26 is allowable.

In the Office Action, the Examiner rejected Claims 29-30 and 33-36, as understood, under 35 USC § 112, first paragraph, as containing subject matter not described in the specification, specifically, acid contained in steel. In response, Applicants have substituted the term "steel" to "part." The basis for the part containing steel is found within the specification. In particular, the specification states that composite parts are "made from material that has an acid content."¹¹ Hence, Applicants respectfully submit that the rejection of Claims 29-30 and 33-36 under 35 USC § 112, first paragraph has been overcome.

¹⁰ Col. 2, lns. 39-41.

¹¹ Col. 4, lns. 18-19.

In the Office Action, the Examiner rejected Claim 31 under 35 USC § 112, second paragraph based on a view that Applicants' recitation of future use makes Applicants' intention of claiming the metal structure/fixture or the acid-containing part comprising the metal structure/fixture unclear. Applicants respectfully submit that a recitation of future use in a claim does not render the claim indefinite under 35 USC § 112, second paragraph. In support thereof, in Ex parte Thibault,¹² the Patent Office Board of Appeal stated that "[e]xpressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim." In Claim 31, the reference to the acid containing part is more than a mere recitation of future use; rather, the acid containing part determines the curing temperature of the adhesive. More particularly, the curing temperature of the adhesive is a function of the leaching temperature of the acid containing part. As understood, the cited prior art does not disclose, suggest, or make obvious the invention of Claim 31. Hence, Application respectfully submits that Claim 31 and its dependent Claims 32-36 are allowable.

CONCLUSION

On the basis of the foregoing, Applicants respectfully submit that Claims 16-38 are in condition for allowance. Applicants therefore respectfully submit that all the stated grounds of rejection have been overcome. Accordingly, an early Notice of Allowance is respectfully requested. Should the Examiner have any suggestions for

¹² 164 USPQ 666, 667 (Bd. App. 1969).

expediting allowance of the application, the Examiner is invited to contact Applicant's representative at the number listed below.

Respectfully submitted,

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